ENVIRONMENTAL ASSESSMENT

I. PROJECT IDENTIFICATION

Project Name and Address:	New Wastewater Treatment Plant and other Improvements to the Wastewater System 3 South Main Street, P. O. Box 325 Whitestown, IN 46075
SRF Project Number:	WW05 66 06 02
Authorized Representative:	Sam Sortor Town Council President

II. PROJECT LOCATION

Whitestown is located in Worth Township in Boone County (Exhibit 1). The existing and future service areas contain parts of Worth, Eagle and Perry Townships (Exhibit 2). The proposed site for the South wastewater treatment plant (WWTP) and its effluent line is undeveloped farm ground located in Fayette Quadrangle, Section 11, T17N, R1E. The plant will discharge to White Lick Creek in Hendricks County.

III. PROJECT NEED AND PURPOSE

The North WWTP, in Whitestown, has an average design flow of 0.25 million gallons per day (MGD) and a peak design flow of 0.89 MGD; it is located on the north side of the service area. It discharges treated effluent to Jackson Run, which is tributary to Eagle Creek. There are no authorized overflow or bypass points. At this time Whitestown is not under enforcement action. However, the North plant does not have the capacity to provide service to the existing and planned development.

The wastewater collection system in Whitestown is a 100% separated sanitary system installed in 1975 to serve 200 users. The sewers in Whitestown are mostly vitrified clay pipe (VCP) and range in size from 8 to 12 inches.

Whitestown has purchased Boone County Utilities (BCU), a public utility that served approximately 3,300 acres in southeastern Boone County and includes many of the areas that Whitestown now intends to serve. Wastewater from the BCU- area is transported to the Indianapolis system for treatment. Whitestown operates under the BCU agreement with Indianapolis, which specifies allowable flows (600,000 gallons per day [GPD]), loadings and concentrations. At the present time, the flows from approximately 968 equivalent dwelling units (EDUs) in the BCU area are within 50% of the allowable allocation. Surcharges related to Biological Oxygen Demand (BOD) exceedances are common. Whitestown anticipates that besides these 968 EDUs, an additional 3,675 EDUs will generate a total of 1.5 MGD of wastewater flow for treatment by 2011. The population in the service area is estimated to grow by 800% over the next 20 years. At the present time, the wastewater allocation allowed by

Indianapolis is not sufficient for the 20-year growth needs of the service area. The operating contract states that *approval of an expanded service area shall not increase Boone County Utilities reserved flow capacity*. In addition, in correspondence dated December 8, 2005, Indianapolis notified Whitestown that treatment fees will increase by 100% over the next three years. Therefore, Whitestown must look at other alternatives in order to provide wastewater service to existing unsewered properties (i.e., Royalton) and planned developments in the annexed areas.

The Whitestown collection system (including the BCU system) contains five lift stations. Two of the lift stations (Perry Worth School and Walker Farms) transport flows to the existing North WWTP. A third lift station is located in, and serves part of, the Stonegate subdivision; it discharges into the East lift station. The remaining two (East and West lift stations) were part of the purchased BCU system; these stations provide service to the southern developments and transport sewage to Indianapolis for treatment.

Recent annexations include the unsewered Royalton area. Wastewater disposal there is currently handled by on-site systems. Most of these systems consist of a septic tank and leach field or a dry well. Failures due to poor drainage and soil limitations allow untreated septic effluent to be discharged into drainageways during wet weather. Most property owners cannot be ordered to install proper septic systems because the lots are too small to accommodate a correction. The Boone County Health Department in a letter dated August 30, 2005 stated: *Due to restrictive site conditions in this area, successful repairs or replacement of the existing on-site systems would be difficult or impossible. The community is ranked second in a statewide ranking in the 'Findings of the Unsewered Community Database.* Whitestown will install sewers in Royalton.

IV. PROJECT DESCRIPTION

To ensure that wastewater treatment capacity keeps up with actual growth, servicing the entire area will be completed in phases. The project proposes:

(1) construction of a new 1.5 MGD South WWTP;
(2) modifications to two lift stations;
(3) installation of a 20-inch force main to redirect flows from those lift stations to the new South WWTP;
(4) removal of the connection to the Indianapolis system; and
(5) extension of low-pressure sanitary service to Royalton.

Work activities related to the collection system, lift stations and force main will occur within disturbed rights-of-way and disturbed easements. The proposed system improvements are shown on Exhibits 3, 4, 5, 6 and 7.

Low Pressure Sewers in Royalton (Exhibit 4) - The collection system will consist of small- diameter sewers with grinder stations. The proposed improvements consist of installation of 1,877 feet of 2-inch pressure sewer and installation of 19 valve vaults at the property line. Abandonment of the septic system, installation of house laterals to connect with the valve vault, and installation of town-provided grinder pumps will be the responsibility of each homeowner. The proposed sewers in Royalton will connect to an existing line in the Eagles Nest subdivision.

East and West Lift Station Modifications (Exhibits 3 and 5)- The proposed project includes piping modifications to allow reversal of flows from the East lift station to the West lift station, installation of Variable Frequency Drives (VFDs) to regulate and control flows from the East lift station, installation of three 1,500 gallons per minute (gpm) pumps with VFDs to increase capacity of the West lift station,

and installation of 17,900 feet of 20-inch PVC force main from the West lift station to the proposed South WWTP.

South WWTP (Exhibits 6 and 7) - The proposed WWTP components include:

- Influent Screen- two, 3.75 MGD each, automatic fine mesh screens.
- Influent Lift Station- three submersible pumps with VFDs. Two pumps jointly will pump 2,950 gpm of wastewater flow; the third pump will act as a backup.
- Aeration Tanks- two 0.98 million gallons each with fine bubble diffusers.
- Return Activated Sludge Pumps- 84 manually controlled air lifts, , 0-20 gpm each, to provide 50 to 150% return sludge rate.
- Clarifiers- two, 1,680 ft^2 each.
- Waste Activated Sludge (WAS) pump station.
- Ultraviolet (UV) Disinfection.
- Diffused Post-Aeration.
- Parshall Flume to monitor effluent flows.
- Aerobic Digester and Sludge Holding Tanks- two, 790,000 gallons each.
- One Sludge Belt Filter Press.
- Blowers- three, 7,200 ft^3/minute each.
- Yard piping, instrumentation and controls.
- Electrical work and back-up power.
- Laboratory building.

The proposed South WWTP will be designed to treat 1.5 MGD of average design flow and 4.2 MGD of peak design flow. The design wasteload capacity for the proposed South WWTP will be: 4,291 pounds/day (lbs/day) 5-day carbonaceous biochemical oxygen demand ($CBOD_5$); 2,439 lbs/day total suspended solids (TSS); and 438 lbs/day ammonia-nitrogen. Sludge will be transported by a contract hauler to the Southside landfill.

The South WWTP effluent will discharge to White Lick Creek in Hendricks County. The IDEM draft NPDES permit dated August 5, 2005 includes the following effluent limitations for the proposed Whitestown South WWTP:

	Monthly Average summer/winter mg/l	Weekly Average summer/winter mg/l
$CBOD_5$	15/25	23/40
TSS	18/30	27/45
Ammonia-Nitrogen	1.6/3.2	2.4/4.8

	Daily Minimum	Daily Maximum	Monthly Average
pH (standard units)	6.0	9.0	
Dissolved Oxygen (summer) mg/l	6.0		
Dissolved Oxygen (winter) mg/l	5.0		
E. coli (colonies per 100 ml)		235	125
Influent Mercury (ng/l)		Report	
Effluent Mercury (ng/l)		Report	

V. ESTIMATED PROJECT COSTS, AFFORDABILITY AND FUNDING

A. Selected Plan Estimated Cost Summary

Construction Costs	**Estimated Cost**	
Royalton Collection System		
2-inch Sanitary Sewer; 1,877 feet	$ 65,695	
19 Valve Vaults	12,350	
Total Estimated Royalton Cost	**$ 78,045**	
South WWTP		
Influent Screens (2)	$600,000	
Influent Lift Station	150,000	
Aeration Tanks with Fine Bubble Diffusers (2)	640,000	
Secondary Clarification (2 units)	628,455	
WAS Station	100,000	
Aerobic Digesters (2)	900,000	
UV Disinfection & Post-Aeration	300,000	
Sludge Belt Filter Press	450,000	
Blowers/Pumps, etc.	320,000	
Yard Piping	250,000	
Instrumentation & Controls	60,000	
Electrical	250,000	
Back-up Power	100,000	
Laboratory Building	200,000	
Total Estimated WWTP Cost	**$4,948,455**	
Lift Station Modifications & Rerouting		
20-inch Force Main; 17,900 feet	$1,163,500	
West Lift Station Modifications		
Replace 3 Pumps	150,000	
Modify Piping	130,000	
VFDs	20,000	
East Lift Station Modifications		
VFDs	20,000	
Reverse piping, plug line to Indy	140,000	
Total Estimated Lift Station Cost	**$1,623,500**	
Total Construction Cost		**$6,650,000**
Non-Construction Costs		
Administrative, Legal, Bond	$200,000	
Land & Right-of-way	445,000	
Construction Engineering Fees	80,000	
Inspection	$180,000	
Plant Start-up	20,000	
Non-Construction Cost Subtotal		**$ 925,000**
Contingencies (10% Construction)		**$ 665,000**
Total Phase I Project Cost		**$8,240,000**

B. The cost for land and easement acquisition (approximately $445,000) is ineligible for SRF financing. Whitestown will borrow an estimated $7,795,000 from the SRF for a 20-year term at an interest rate to be determined at loan closing. SRF interest rates are adjusted quarterly and will be equal to or lower than AAA open-market rates. Monthly user rates and charges may need to be analyzed to determine if adjustments are required for loan repayment.

VI. DESCRIPTION OF EVALUATED ALTERNATIVES

A. Collection System Alternatives

The **no-action** alternative was rejected, since it would not solve the on-site wastewater disposal problems.

The alternative involving **optimization of the existing on-site systems** consists of upgrading the on-site systems to optimize their performance. Site conditions are such that the septic systems cannot be properly operated or upgraded, so this alternative was rejected.

The alternative involving **installation of sanitary sewers** consists of installing wastewater collection lines to serve the Royalton area. Preliminary field investigations indicate that due to the terrain and narrow rights-of-way, the best solution is a low pressure system with an individual grinder pump at each home. The property owner would be responsible for abandoning their septic system, installing the grinder pump and connecting the home to the valve vault, which would be installed at the property line. Whitestown will provide the grinder pumps. Installing sanitary sewers to replace the septic systems is believed cost-effective, technically feasible, reliable, and environmentally sound.

B. Treatment Plant Alternatives

The **no-action alternative** would not permit treatment of anticipated flows due to growth. And those flows would exceed the allocation permitted by Indianapolis in its system. This alternative was eliminated from further consideration.

Expansion of the existing Whitestown North WWTP would require major modification and additional land. The North WWTP discharges upstream of Eagle Creek Reservoir, which is used as a source for drinking water. Therefore, the plant would have to be modified to provide advanced treatment. In addition, providing service to the southern part of the service area from the North plant would require installation of lengthy force mains and numerous lift stations, most of which would pump uphill to the plant. Therefore, this alternative was rejected.

Request Additional Capacity from the Indianapolis Water Treatment Plant: The existing contract terms do not include provisions for additional capacity. BOD and ammonia levels frequently exceed the contract limits. This alternative was rejected.

Construct a New South WWTP: The plant would be constructed in the southern part of the service area to better serve the Royalton area and planned developments. The site for the proposed South WWTP was selected because of its availability, size, accessibility from developing areas and proximity to an acceptable effluent receiving stream. Flows that are currently transported to Indianapolis will be rerouted to the new plant. Components would include an influent bar screen, influent lift station, aeration tanks, clarifiers, UV disinfection, post-aeration,

aerobic digester/sludge holding and belt filter press. The initial (Phase 1) design capacity would be 1.5 MGD, but the plant could be expanded in the future as needed. This alternative will require modifications to two existing lift stations (East and West) and the installation of a force main to the new South plant. Improvements to the lift stations consist of piping modifications to reverse the flows and replacement of the pumps in the West lift station. This is the selected alternative.

VII. ENVIRONMENTAL IMPACTS OF THE FEASIBLE ALTERNATIVES

Environmental impacts can be classified as either direct or indirect. Direct impacts result from the construction, operation, and maintenance processes. Indirect impacts are those that are made possible by the project, such as development.

A. Direct Impacts of Construction and Operation

Undisturbed Land: Installation of sanitary sewers in the Royalton area (Exhibit 4) will occur in existing streets and easements that have been previously disturbed. The lift station work will occur in existing structures and on land significantly disturbed by construction activity. The proposed force main to the proposed South WWTP will be installed immediately next to county roads in the disturbed right-of-way; it will enter the proposed plant via undisturbed farmland. The proposed South WWTP will be constructed on farmland, and a 15 foot easement in undisturbed land will be necessary to install the effluent line to White Lick Creek. The proposed South WWTP (Exhibit 7) is located in Boone County, Section 11, T17N, R1E in the Fayette USGS quadrangle; the effluent line and outfall will be located in Section 14 in Hendricks County.

Historic, Architectural and Archeological Sites: There are no known historic, architectural or archaeological sites which would be impacted by this project. No architectural features of any sites will be affected, as work activities will be limited to existing rights-of-way, disturbed easements and undisturbed farm ground.

Plants and Animals: Limited tree removal will be necessary to install the effluent line**.** The construction and operation of the project will not negatively impact state or federal-listed endangered species or their habitat. The project will be implemented to minimize impact to non-endangered species and their habitat. Mitigation measures cited in comment letters from the Department of Natural Resources and the U.S. Fish and Wildlife Service will be implemented.

Prime Farmland: The proposed South WWTP and influent and effluent lines will convert approximately 22.1 acres of prime/unique farmland.

Air Quality: Construction activities may generate some noise, fumes, and dust. The dust, fumes and noise are short term impacts, lasting only during the construction phase. Construction activities should not significantly impact ozone, airborne pollutants or other air quality concerns.

Groundwater, Aquifers, and Drinking Water Supplies: The seasonal high groundwater levels for the soil types in the area range from 0 to 6 feet. If necessary, dewatering will be employed during construction with the flow directed to a sedimentation basin prior to being discharged to surrounding surface waters. The project will not impact a drinking water supply or sole source aquifer.

Surface Waters and Stream Crossings (Exhibit 8): The project will require a bored crossing of Etter Ditch. The project will not adversely affect Exceptional Use streams, Outstanding State Resource waters or Natural, Scenic and Recreational Rivers and Streams.

Wetlands (Exhibit 8): Etter Ditch is a wetland. Mitigation measures required by the Indiana Department of Natural Resources and the U.S. Fish and Wildlife Service will be implemented.

100-Year Floodplain (Exhibit 9): Only the effluent line to White Lick Creek will be situated in the 100-year floodplain.

Open Space and Recreational Opportunities: The proposed project's construction and operation will neither create nor destroy open space and recreational opportunities.

Construction and operation of the proposed project will not impact National Natural Landmarks.

B. Indirect Impacts

Whitestown's Preliminary Engineering Report (PER) states: *The Town, through the authority of its Council, planning commission, or other means will ensure that future development, as well as future collection system or treatment works projects connecting to publicly-funded facilities, will not adversely impact wetlands, archaeological/ historical/structural resources, or other sensitive environmental resources. The Town will require new development and treatment works projects to be constructed within the guidelines of the U.S. Fish and Wildlife Service, IDNR, IDEM, and other environmental review authorities.*

C. Comments from Environmental Review Authorities

This document is the first notice to the U.S. Fish and Wildlife Service and Indiana Department of Natural Resources (IDNR) Environmental Unit.

The IDNR Division of Historic Preservation and Archaeology (DHPA), in correspondence dated April 20, 2006, directed that an archaeological reconnaissance level survey be implemented on archaeologically undisturbed project areas (typically, farmland). In correspondence dated August 16, 2006, the State Historic Preservation Officer stated: *Based on our analysis, it has been determined that no historic properties will be altered, demolished, or removed by the proposed project. Please be advised that the Howard Cemetery is located adjacent to the areas of the proposed project activities. Provisions of relevant state statutes regarding cemeteries (including IC23-14 and IC14-21-1) must be adhered to. This cemetery should be avoided by all ground disturbing activities. If any archaeological artifacts, features, or human remains are uncovered during construction, state law(Indiana Code 14-21-1-27 and 29) requires that discovery must be reported to the Department of Natural Resources within two (2) business days.*

The Natural Resources Conservation Service, in correspondence dated August 10, 2005, stated: *The project to make wastewater system improvements…will cause a conversion of prime farmland. The letter indicates that approximately 22.1 acres of prime and unique farmland will be converted due to this project.*

VIII. MITIGATION MEASURES

Whitestown's PER states:

Siltation and erosion will be kept to a minimum. Any mitigation measures mandated by authorized reviewing agencies to reduce or eliminate waterway contamination will be implemented. Mitigative measures to limit erosion and siltation will include the following:

a. Erosion and sediment control measures required by the project specifications will require that the contractor provide a schedule for clearing, grading, excavating and restoring disturbed areas, along with a description of measures to be used during construction to ensure erosion/ sediment control. The program shall meet all applicable federal, state, and local requirements.
b. Natural vegetation will be retained wherever feasible.
c. Excavations will be limited to right of ways where possible.
d. Appropriate agronomic practices (sediment basins, seeding, mulching) will be provided to control runoff, including shoreline and stream crossings, if applicable.
e. Drainage systems, including surface and subsurface drainage, will be returned to their natural state as soon as possible, if disturbed.
f. Roadways and parking lots will remain stabilized during construction to the extent possible.
g. When possible, construction activities will be scheduled to avoid excessively wet conditions.
h. No more than 100 feet of open trench will be allowed. Where possible, excavated material will be kept to the upland side of the trench. Excess material will be used elsewhere on the project.
i. The existing topsoil will be reused during the restoration process.
j. If necessary, discharge from dewatering may be directed to sedimentation basins prior to discharging into surrounding surface waters.

The adverse impacts caused by dust may be alleviated by periodically wetting the exposed soil and unpaved roadways to reduce the suspension of particles. To reduce noise impacts, work activities can be limited to normal daytime hours.

IX. PUBLIC PARTICIPATION

During the past few years, Whitestown has held meetings to discuss the need for the project, financial impacts, and potential funding sources. Project information was also presented at regular council meetings with opportunities for questions and comments. A properly noticed public hearing was held at 6:00 PM on October 17, 2005 at the Town Hall to discuss the PER and to solicit public comments. Questions raised at the hearing were related to master planning and phasing of the projects; Whitestown received no written comments in the 10-day period following the hearing.